



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/846,976	05/02/2001	Atsushi Mizusawa	MIZU-0001US	4948

7590 03/10/2004
KNOBLE & YOSHIDA, LLC
Eight Penn Center, Suite 1350
1628 John F. Kennedy Blvd.
Philadelphia, PA 19103

EXAMINER

WILLS, MONIQUE M

ART UNIT PAPER NUMBER

1746

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/846,976

Applicant(s)

MIZUSAWA ET AL.

Examiner

Wills M Monique

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 January 1952.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 7-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-6, drawn to a fuel cell anode, classified in class 429, subclass 40.
- II. Claims 7-18, drawn to a process of preparing an anode material, classified in class 429, subclass 27.
- III. Claims 19-22, drawn to a method of generating electricity, classified in class 429, subclass 13.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the anode as claimed can be made by conventional procedures, such as, mixing the active material to form a slurry and coating the slurry on a substrate.

Inventions II and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes

Art Unit: 1746

of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions have different functions. The process of invention II functions to create an anode material for a fuel cell. The process of invention III functions to generate electricity.

Inventions I and III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process can be practiced by a materially different apparatus such as a metal/air cell.

Election

Claims 7-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected method of making an anode, there being no allowable generic or linking claim. Election was made **with** traverse. See interview summary record.

Claims 19-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected method of generating electricity, there being

Art Unit: 1746

no allowable generic or linking claim. Election was made **with** traverse. See interview summary record.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Mazanec et al. U.S. Patent 6,019,885.

With respect to claim 1, Mazanec teaches a fuel cell comprising: an anode, a cathode and an electrolyte disposed in between (Fig. 13, col. 24, lines 1-5). Regarding claims 4 & 6, the anode comprises an inorganic catalyst including calcium nickel phosphate and chromium oxide (col. 2, lines 60-68, col. 23, lines 10-15). The prior art of Mazanec anticipates the claims as set forth. The limitation in claim 1, with respect to the anode material having a plurality of molecular recognition sites, is considered to be an inherent property of the anode catalyst as set forth in the prior art, because Mazanec employs the same metal oxide and complexing agent set forth by Applicant. The limitation in claim 2, with respect to the anode material comprising a supramolecule selected from a plurality of chains, plurality of layers or three dimensional open-framework structure all of which include a plurality of molecular

Art Unit: 1746

recognition sites, is considered to be an inherent property of the anode catalyst as set forth in the prior art, because Mazanec employs the same metal oxide and complexing agent set forth by Applicant. Regarding limitation in claim 3, with respect to the supramolecule comprising an octahedral-tetrahedral framework, pyramidal-tetrahedral framework or tetrahedral-tetrahedral framework, is considered to be an inherent property of the anode catalyst as set forth in the prior art, because Mazanec employs the same metal oxide and complexing agent set forth by Applicant. As to the limitation in claim 5, with respect to the molecular recognition sites recognizing a fuel selected from fructose, galactose, glucose, lactose, mannose, sucrose, methanol, ethanol, propanol, butanol, tert-butanol, is considered to be an inherent property of the anode catalyst as set forth in the prior art, because Mazanec employs the same metal oxide and complexing agent set forth by Applicant.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 1746

Claims 1,2 & 5 rejected under 35 U.S.C. 102(e) as being anticipated by Heller U.S. Patent 6,294,281 in view of Applicant's disclosure as evidentiary support.

With respect to claim 1, Heller teaches a fuel cell comprising an anode, cathode and electrolyte disposed in between (Fig. 1). Regarding claim 2, the enzyme includes material with a plurality of chains including glucan-1, 4- α -glucosidase and endo-1-3(4)- α -glucanase (col. 10, lines 15-20). With respect to claim 5, the anode includes an enzyme that electroxydizes glucose and other biochemicals (col. 9, lines 55-60). The prior art of Heller anticipates the claims as set forth. The limitation in claim 1, with respect to the anode having a plurality of molecular recognition sites, is considered to be an inherent property of the anode enzyme as set forth in the prior art, because Heller employs an enzyme that electroxydizes glucose. According to Applicant's specification at page 2, lines 10-15, enzymes naturally catalyze biochemical reactions through molecular recognition processes. Therefore, the enzymes of Heller react with glucose and other biochemicals through the enzyme's natural molecular recognition sites.

Conclusions

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is

Art Unit: 1746

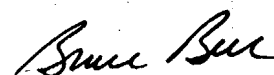
(571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Randy Gulakowski, may be reached at 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mw

02/14/04


BRUCE F. BELL
PRIMARY EXAMINER
GROUP 1700

Application/Control Number: 09/846,976
Art Unit: 1746

Page 8